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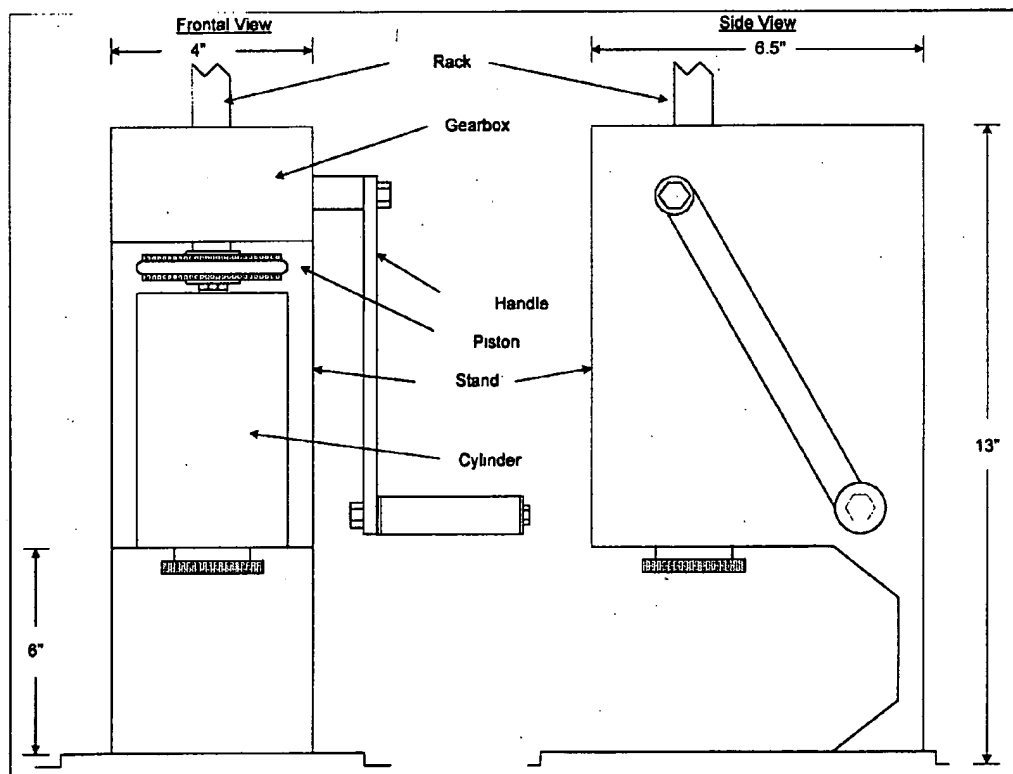
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(54) Titre : « STRING HOPPER »

(54) Title: STRING HOPPER



(57) Abrégé/Abstract:

A manually operated machine to make "String Hopper" (Sri lankan / East Indian food). Rack and pinion gear systems is used to drive piston. Piston presses the ingredient inside a cylinder. Other side of the cylinder has small holes. "String Hopper" comes out of these holes. Open area under the cylinder allows "String Hopper" tray to move freely to make "String Hopped".

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## **Abstract**

A manually operated machine to make "String Hopper" (Sri lankan / East Indian food). Rack and pinion gear systems is used to drive piston. Piston presses the ingredient inside a cylinder. Other side of the cylinder has small holes. "String Hopper" comes out of these holes. Open area under the cylinder allows "String Hopper " tray to move freely to make "String Hopper".

## Specifications

**1** - This invention relates to a manually operated household device, used for the making of East Indian/Sri Lankan "String Hopper". String Hopper being a type of food consisting of dough created by steamed flour and or roasted rice flour.

**2** - Other devices utilized to achieve the making of this type of food requires two handed operation using physical excursion to achieve what our machine makes relatively simple, through a rack and pinion set-up. Other devices require physical strength to press, where-as our invention utilizes handle leverage to achieve the same goal. Other devices are capable of creating 1-2 "String Hoppers" per application, which is extremely inefficient and time consuming, compared to my device which can create 25-200 String Hoppers per application.

**3** - I have found that the disadvantages have been overcome by implementing a rack and pinion set-up to cut down on the amount of physical excursion used in the process. The disadvantage of the amount of String Hoppers made in one application is replaced by a more economical and less time consuming process with my invention.

## **4 - Drawings and description**

- 1: Figure 1A - Frontal view of the "String hopper" Machine  
Figure 1B - Side view of the "String hopper" Machine  
Approximate specifications are indicated in the drawing.

**Please note**

The machine size may vary depending on the cylinder size  
Gearbox and mechanism may vary depending on the cylinder size.

- 2: Figure 2A and Figure 2B shows how the cylinder slides into the suspended bracket in the Stand.
- 3: Figure 3 – The open area below the cylinder allows "String hopper" tray to move freely to make "string hopper".
- 4: Figure 4A. And Figure 4B - The Cylinder's approximate specifications are indicated. These change slightly depending on the model.

Figure 4C – Piston.

- 5: Figure 5 – General function is explained briefly.
- 6: Figure 6- Type 1 Gear System.
- 7: Figure 7- Mechanics of Type 1 Gear System.
- 8: Figure 8- Type 2 Gear System.
- 9: Figure 9- Mechanics of Type 2 Gearbox.
- 10: Figure 10 - 3Dimensional view of previously used system.
- 11: Figure 11- Cross Section of previously used system.

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows.

A: A manually operated apparatus is used to make "String Hopper". A stainless steel cylinder, filled with ingredients, is placed in a suspended stand. A rack and pinion piston system, operated by a rotating lever, pushes the ingredients through a cylinder and a food shaping plate.

B: An open area below the food shaping plate allows for easy collection of the String Hopper.

C: Cylinder Suspending Mechanism is used in this machine.

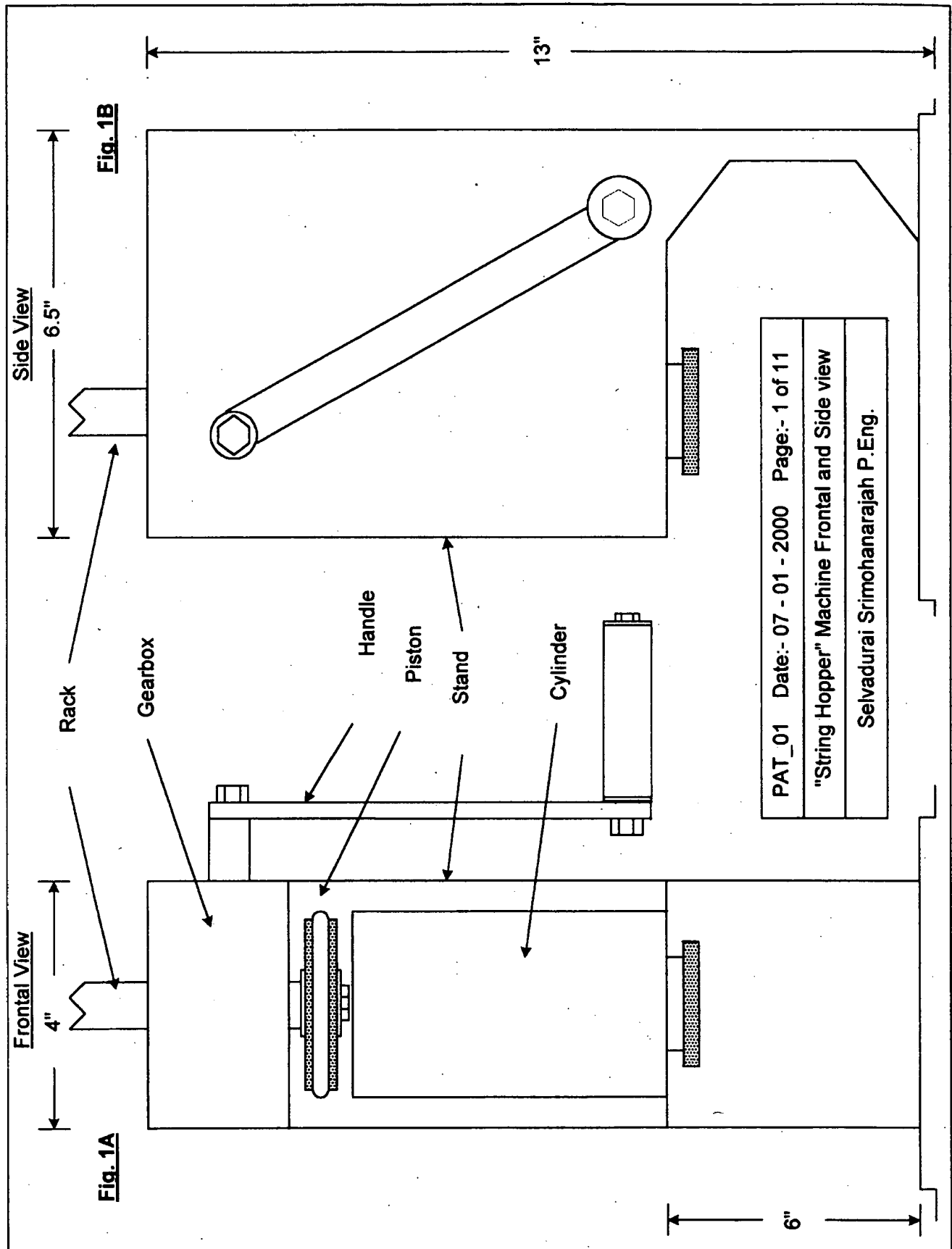
D: Shape of the Cylinder is used in this machine.

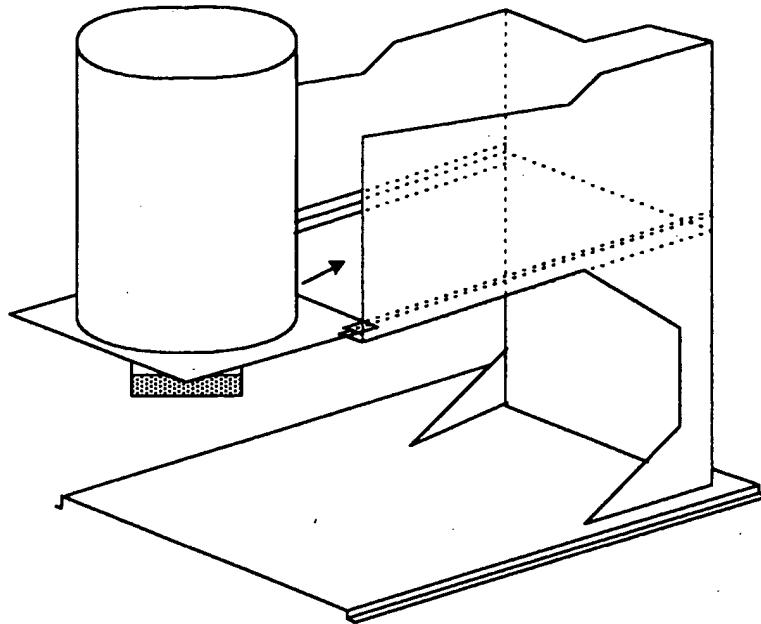
D: Type 1 and Type 2 Gearboxes are used in this Machine.

E: Type 1 and Type 2 Gears systems are used in this Machine.

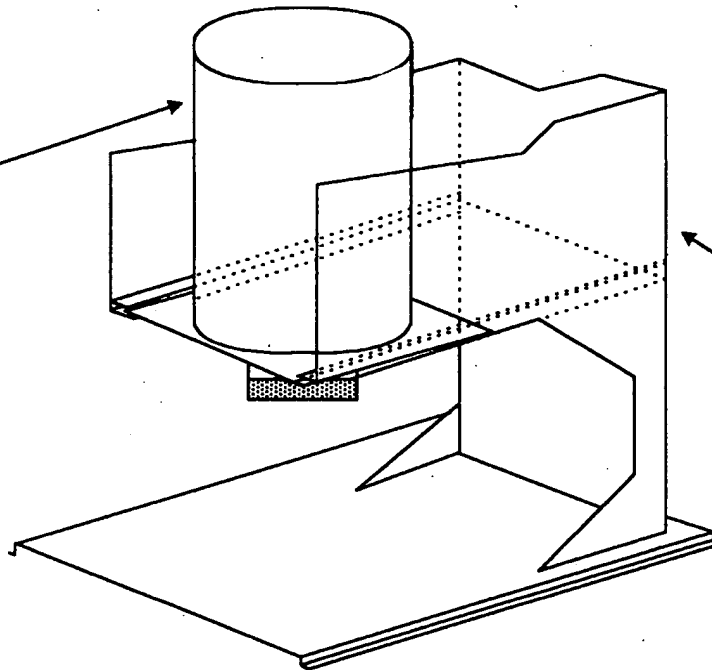
F: Shape of the Stand.

G: Shape of the Machine.



**Fig. 2A**Cylinder slides into suspend bracket.**Fig. 2B**

Cylinder

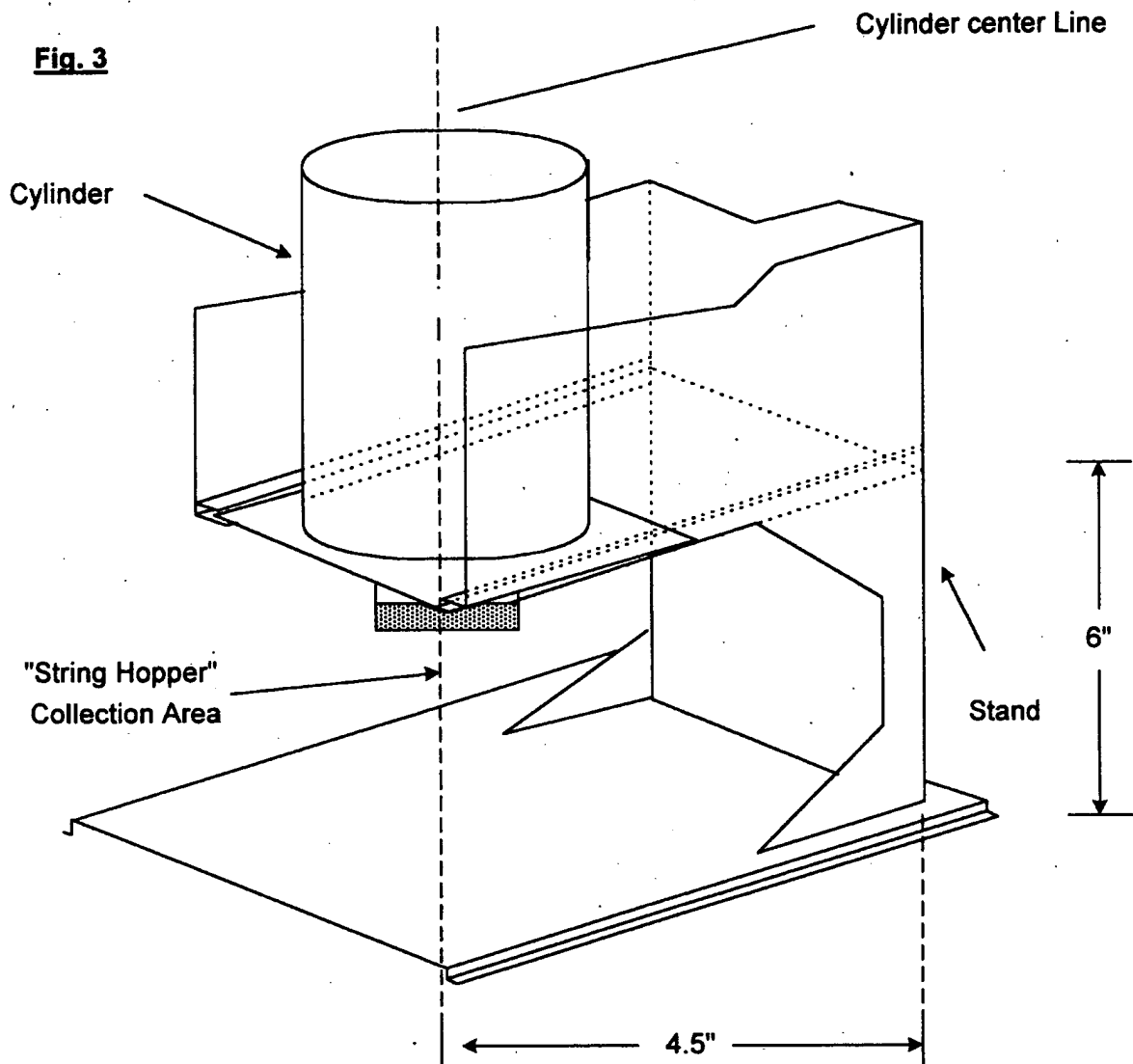


Stand

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Cylinder Suspending Mechanism

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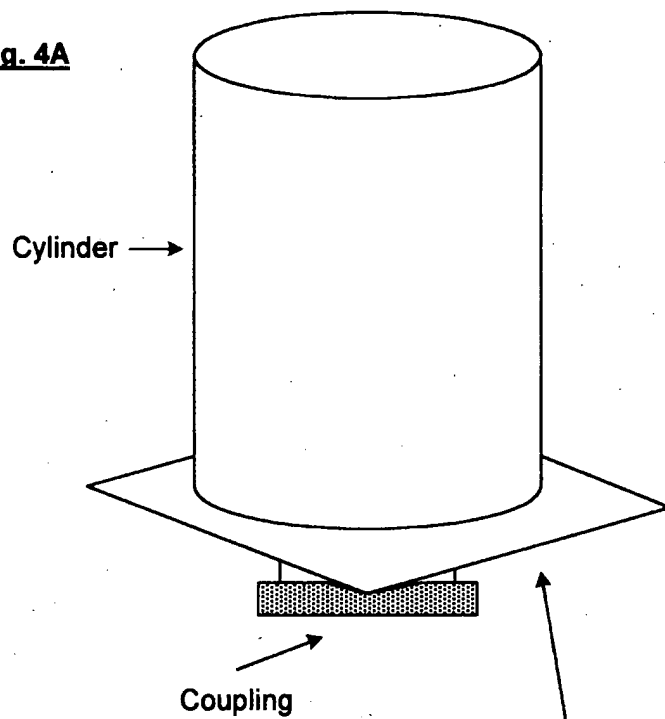
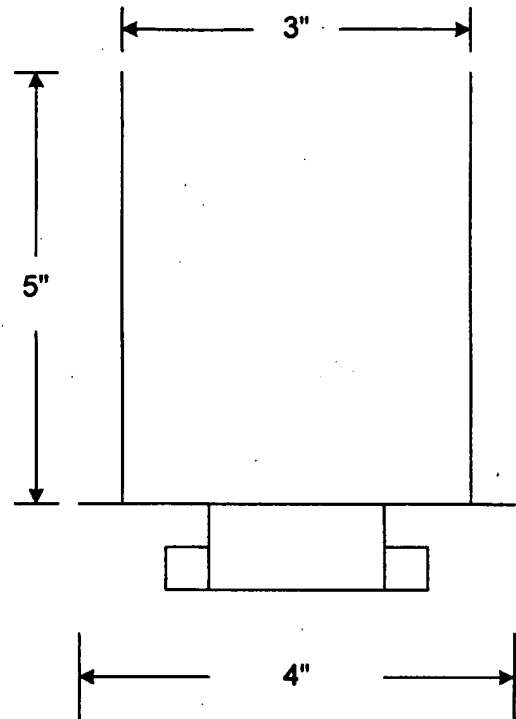
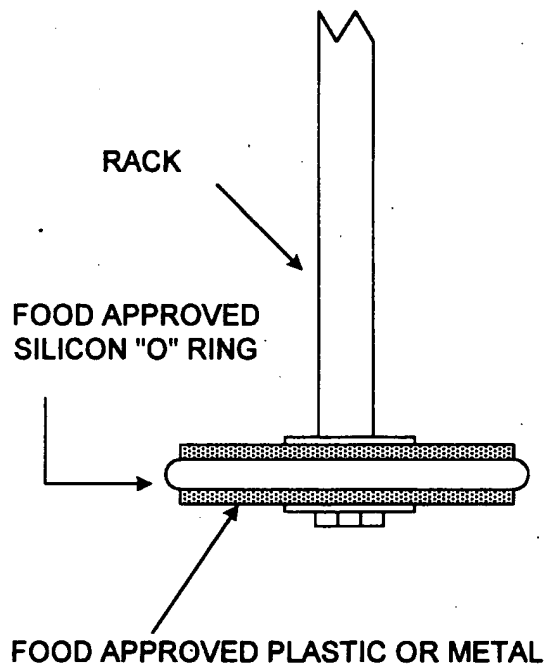
**Fig. 3**

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Open "String Hopper" collection area

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**CYLINDER****Fig. 4A****Fig. 4B****PISTON****Fig. 4C**

4" x 4" Plate

**Please Note**

Cylinder Specification can be changed slightly  
for different models.

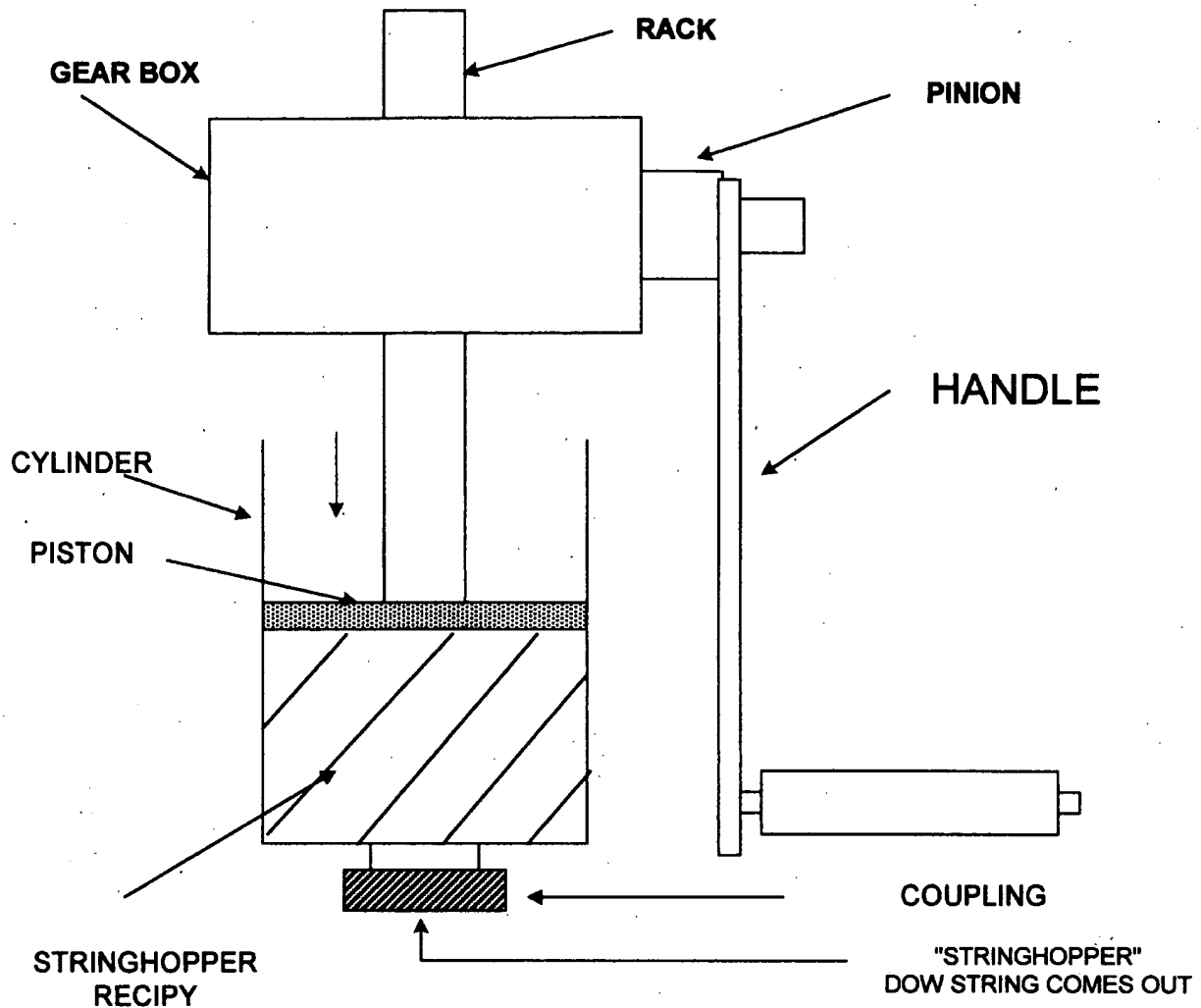
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Cylinder and Piston

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# SYSTEM IN GENERAL

Fig. 5



- 1 ROTATING THE HANDLE BY HUMAN HANDLE PINION AND GEAR SYSTEMS PUSHES THE PISTON DOWNWARD AND GIVES PRESSURE TO "STRING HOPPER" INGREDIENCE.
- 2 "STRING HOPPER" INGREDIENCE PASS THROUGH SMALL HOLES TO MAKE STRINGS.
- 3 SOME TRADITIONAL SWEETS ALSO CAN BE MADE FROM DIFFERENT SHAPES INSIDE COUPLING
- 4 GEARS AND , GEAR BOX MAY CHANGE DEPENDING ON CYLINDER SIZE

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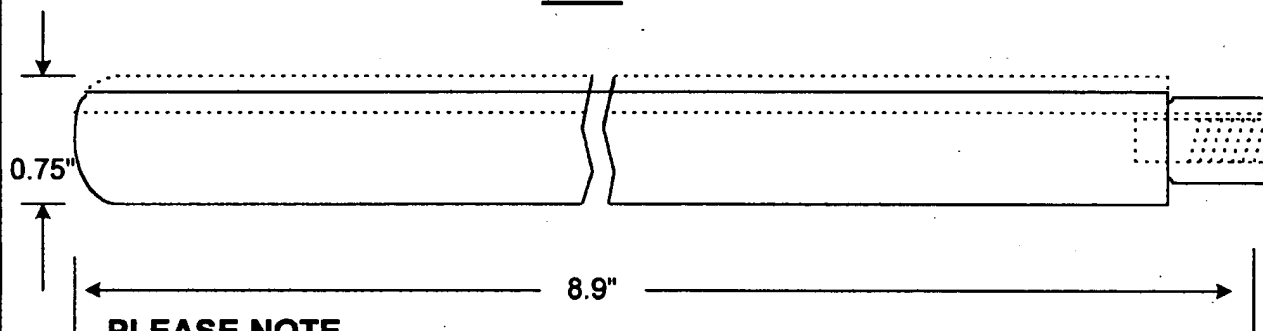
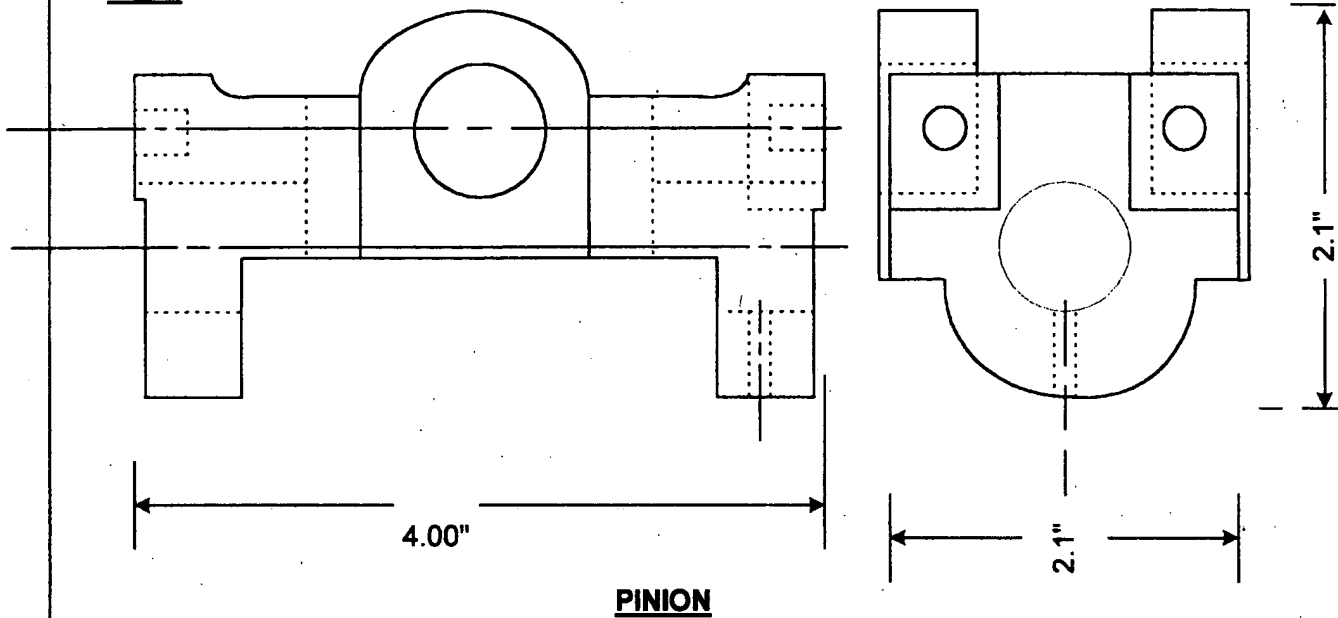
System in general

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**TYPE 1 GEAR SYSTEM****GEAR BOX****Fig. 6**

TOP VIEW

SIDE VIEW

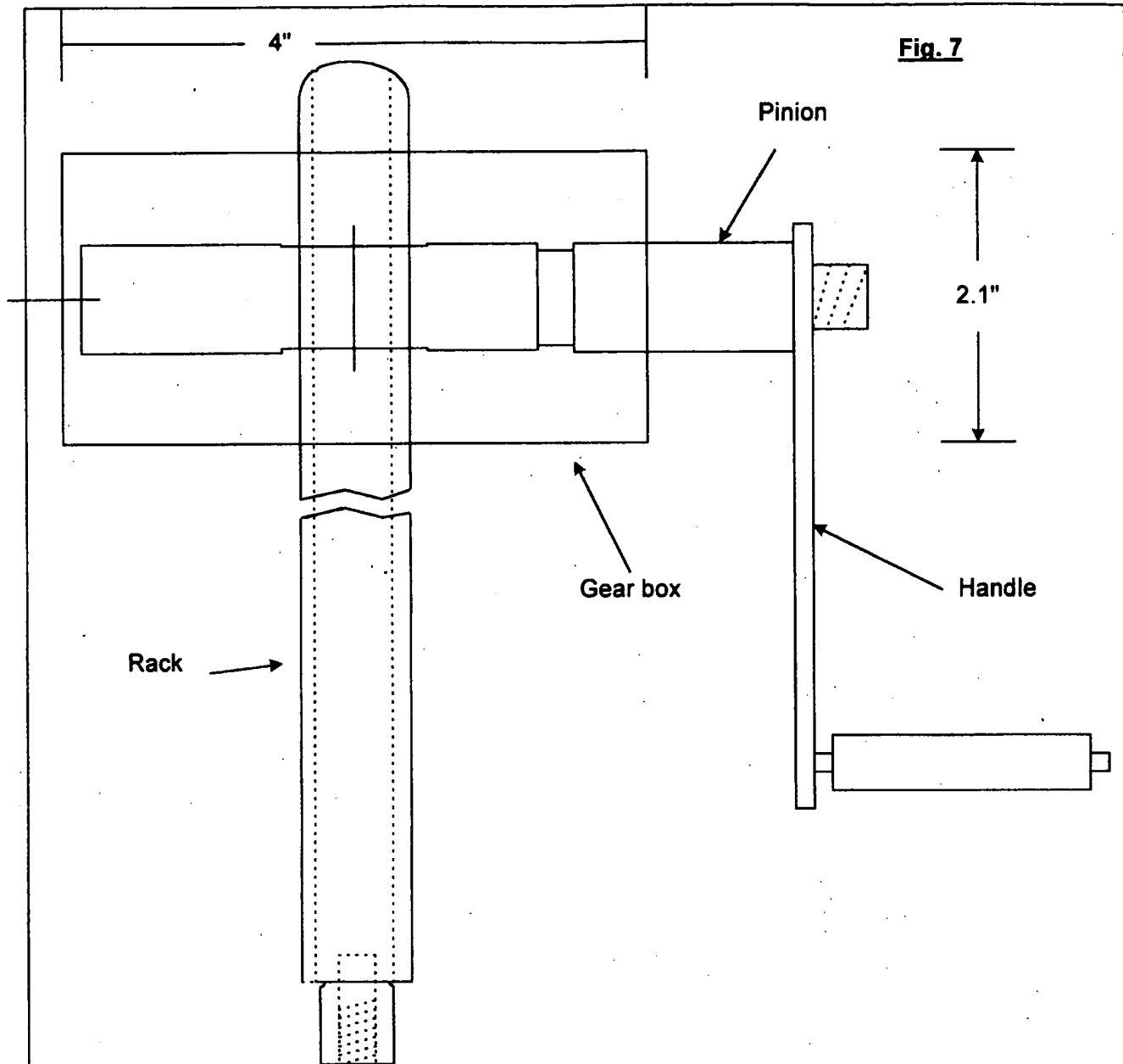
**PLEASE NOTE**

**These Specifications can be changed slightly depending on cylinder size.**

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Type 1 Gear System

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- 1: Handle rotates pinion
- 2 Pinion drives the rack up and down.

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Mechanics of Type 1 Gear System

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**Fig. 8****TYPE 2 GEAR BOX**

Side view

1.25"

4"

Rear view of type 2 gear box

5"

**PLEASE NOTE**

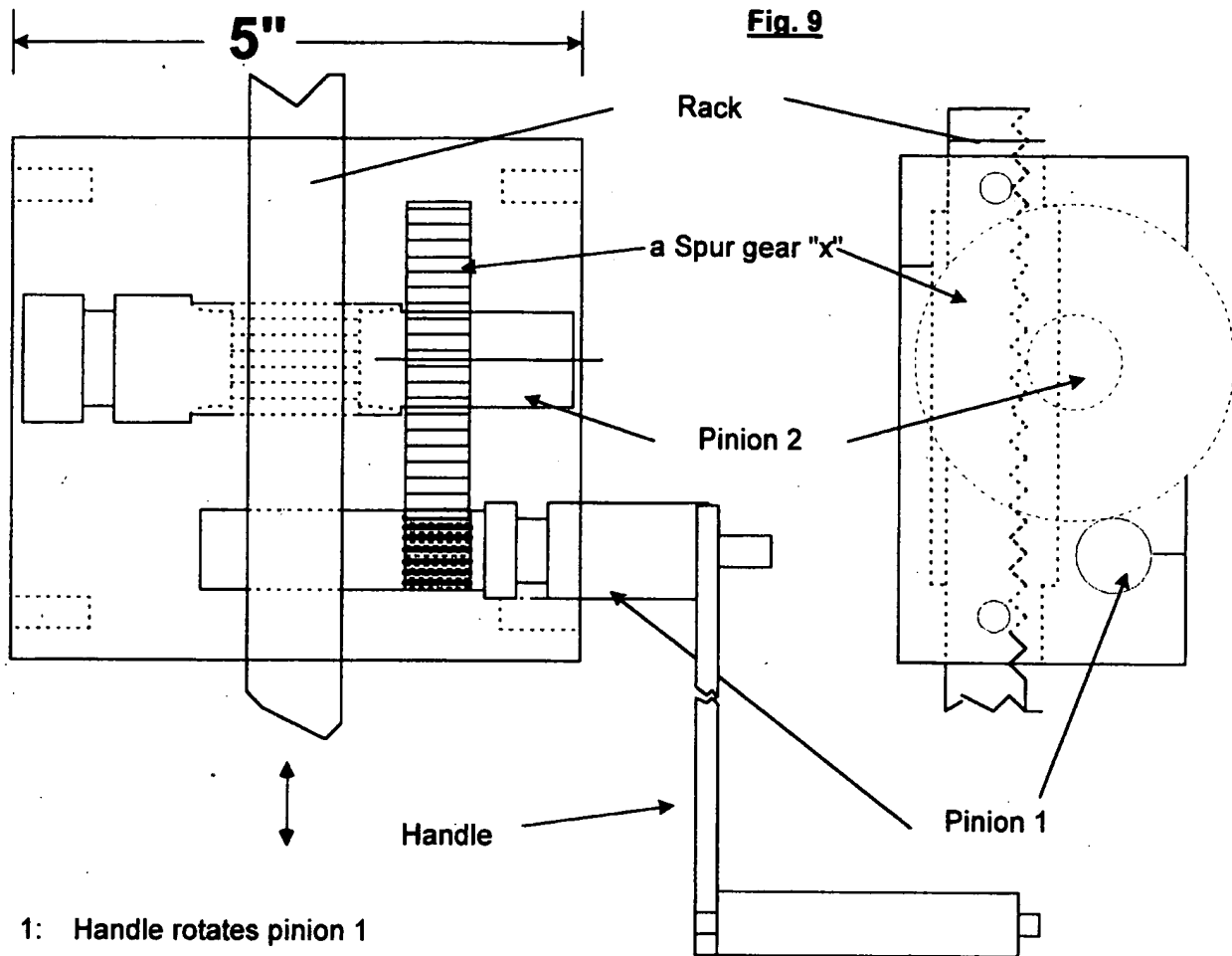
In type 2 additional pinion and gear have been used to reduce the required force to drive the rack.  
gear box size may change depending on cylinder size used in the system.

Approximate size is given.

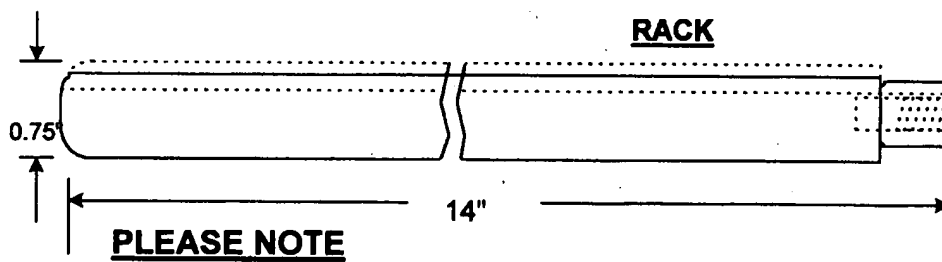
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Type 2 Gear Box

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- 1: Handle rotates pinion 1
- 2 pinion1 rotates spur gear "x"
- 3 Spur gear "x" and pinion 2 are connected in the middle
- 4 Therefore when spur gear "x" rotate pinion 2 will rotate.
- 5 Pinion 2 drives the rack up and down.

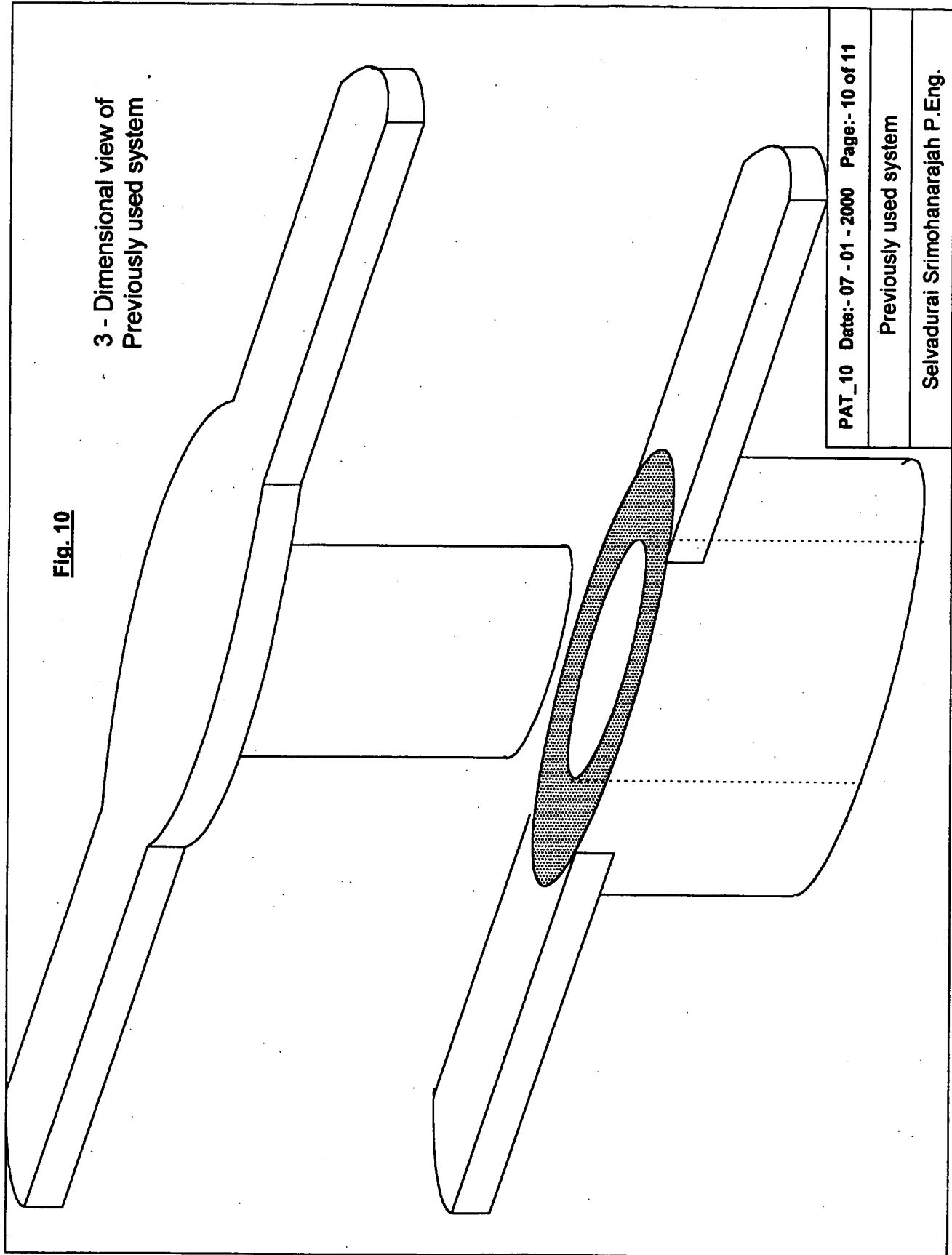


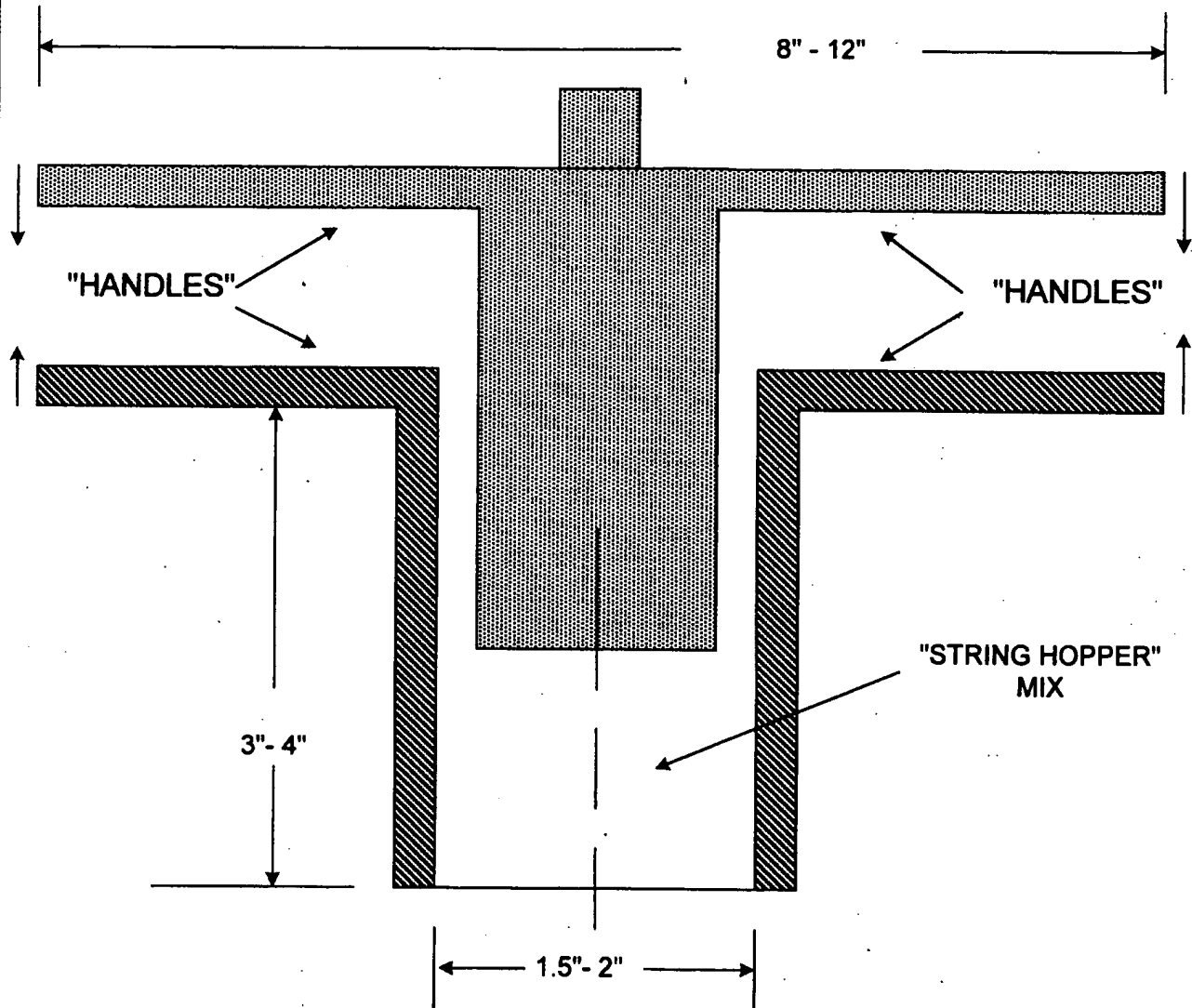
**These Specifications can be changed slightly depending on cylinder size.**

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Mechanics of Type 2 Gear System

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**Fig. 11****CROSS SECTION OF PREVIOUSLY USED SYSTEMS**

Handles are squeezed by hands to push the piston downwards

"STRING HOPPER" STRINGS COME OUT FROM THE BOTTOM.

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Cross Section of Previously used system

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